

## PCT



INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference F17398 SCF	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA416)	
International application No. PCT/IB 03/02796	International filing date (day/month/year) 15.07.2003	Priority date (day/month/year) 21.08.2002
International Patent Classification (IPC) or both national classification and IPC F04D29/14		
Applicant WEIR-ENVIROTECH (PROPRIETARY) LIMITED et al.		

1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 1 sheets.

## 3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 68.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 08.03.2004	Date of completion of this report 12.11.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523658 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Pinna, S Telephone No. +49 89 2399-7912 

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**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/B 03/02796**

**I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-6 as originally filed

**Claims, Numbers**

2-4, 5 (part), 6-19 as originally filed

1, 5 (part) received on 11.10.2004 with letter of 08.10.2004

**Drawings, Sheets**

1/1 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/IB 03/02796**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under Item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 17-19

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

*see separate sheet*

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 17-19

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	
	No: Claims	1-16
Inventive step (IS)	Yes: Claims	
	No: Claims	2-4,6-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/IB 03/02796**

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**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IB 03/02796

**Re Item V**

1. Reference is made to the following documents:

D1: JP-A-7332377

D2: DE-A-2322458

2. Claim 1 lacks novelty as required under article 33(2) PCT for the following reasons.

D1 is regarded to represent the most relevant state of the art.

This document discloses:

A method of shielding a bearing, which is mounted in a bearing casing and which supports a shaft for rotation, against undesirable matter, the method including laterally covering a side of the bearing and the bearing casing by means of a circumferential shield rotatably fast with the shaft and having a peripheral rim at least partially overlapping the bearing casing;

when the shaft is rotating, dilating said peripheral rim to provide running clearance, shielding the bearing casing from stray undesirable matter and flinging any such stray undesirable matter touching the shield centrifugally away from the bearing casing;

when the shaft is stationary, contracting said peripheral rim to touch the bearing casing to provide a seal (cf. D1, abstract and figure).

3. The subject-matter of dependent claims 2-4 does not appear to add to the subject matter of claim 1 anything which might be considered novel or inventive in the present context, in view of the disclosures in D1 and D2. Therefore said claims do not meet the requirements of the PCT in respect of novelty and / or inventive step (Article 33(2) and 33(3) PCT).

4. Claim 5 lacks novelty as required under article 33(2) PCT for the following reasons.

D1 discloses:

A rotary shield assembly comprising a shaft supported for rotation in a bearing mounted in a stationary bearing casing, and a shield comprising

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IB 03/02796

a rotary disc around the shaft proximate to and shielding a side of the bearing;  
a peripheral rim along an outer periphery of the disc and at least partially  
overlapping the bearing casing;  
a bias mechanism biasing the rim toward the bearing casing, the arrangement  
being adapted, during rotation, on account of mass of the rim, to  
cause centrifugal force to dilate the rim away from the casing to provide running  
clearance (cf. D1 abstract and figure).

5. A clear novelty of claims 1 and 5 could not be perceived also in view of the disclosures of document D2.
6. The subject-matter of claims 6-16 does not appear to add to the subject matter of claim 5 anything which might be considered novel or inventive in the present context, in view of the disclosures in D1 and D2. Therefore said claims do not meet the requirements of the PCT in respect of novelty and / or inventive step (Article 33(2) and 33(3) PCT).
7. Claims 17-19 contain references to the description and the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here. The above mentioned claims have not been considered during examination.
8. Further, the application presents the following deficiencies:
  - a) Independent claims 1 and 5 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
  - b) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
  - c) The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

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CLAIMS:

1. A method of shielding a bearing, which is mounted in a bearing casing and which supports a shaft for rotation, against undesirable matter, the method including

laterally covering a side of the bearing and the bearing casing by means of a circumferential shield rotatably fast with the shaft and having a peripheral rim at least partially overlapping the bearing casing;

- when the shaft is rotating, dilating said peripheral rim to provide running clearance, shielding the bearing casing from stray undesirable matter and flinging any such stray undesirable matter touching the shield centrifugally away from the bearing casing;

when the shaft is stationary, contracting said peripheral rim to touch the bearing casing to provide a seal.

2. A method as claimed in Claim 1 which includes shielding the peripheral rim by means of a cowl overlapping the peripheral rim.

3. A method as claimed in Claim 2 in which said overlapping of the peripheral rim is with annular clearance.

4. A method as claimed in Claim 1 or Claim 2 or Claim 3 in which touching the bearing casing when the shaft is stationary is by means of a peripheral beading inwardly proud of the peripheral rim.

5. A rotary shield assembly comprising a shaft supported for rotation in a bearing mounted in a stationary bearing casing, and a shield comprising a rotary disc around the shaft proximate to and shielding a side of the bearing;

a peripheral rim along an outer periphery of the disc and at least partially overlapping the bearing casing;

a bias mechanism biasing the rim toward the bearing casing, the arrangement being adapted, during rotation, on account of mass of the rim, to

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